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10/736,903	12/17/2003	Hideki Ohwada	03USFP927-M.K.	4017

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MCGINN INTELLECTUAL PROPERTY LAW GROUP, PLLC
8321 OLD COURTHOUSE ROAD
SUITE 200
VIENNA, VA 22182-3817

EXAMINER	
AHMED, SALMAN	
ART UNIT	**PAPER NUMBER**
2619	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/736,903	OHWADA, HIDEKI	
	Examiner	Art Unit	
	Salman Ahmed	2619	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4-7,9,15,16 and 21* is/are rejected.

7)☒ Claim(s) *3,8,10-14,17-20 and 22-25* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claims 1-25 are pending.

Claims 1, 2, 4-7, 9, 15, 16 and 21 are rejected.

Claims 3, 8, 10-14, 17-20 and 22-25 are objected to.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 2, 7, 9, 15, 16 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior art in view of Takeishi et al. (US PAT 5689525, hereinafter Takeishi).

In regards to claim 1, Applicant's admitted prior art teaches a control section (Figure 1, a control section 110) which generates a first transmission start signal to instruct start of software hand-over for a mobile station which is communicating (page 2 lines 22-26, The control section 110 refers to an internal counter 109 in a software polling process, and calculates the transmission start timing based on a value read out from the internal counter 109 and outputs transmission start signal to spreading section 102b).

Applicant's admitted prior art does not explicitly teach a transmission signal processing section which determines a current time period from at least one previous

time period in response to first transmission start signal, and generates a second transmission start signal after the determined current time period from reception of first transmission start signal, at least one previous time period being measured in transmission signal processing section, wherein a transmission signal is transmitted from communication control apparatus to communicating mobile station in response to transmission start signal.

Takeishi in the same field of endeavor teaches a transmission signal processing section (Figure 1, in base station 10 the data controller 11, the transmitter 12, the receiver 13, the clock signal generator 14 and the duplexer 15 in combination is the transmission signal processing section) which determines a current time period (columns 1-2, lines 65-20, a timing depending on the delay-resultant clock signal) from at least one previous time period (columns 1-2, lines 65-20, time when a basic clock signal is first generated) in response to first transmission start signal (columns 1-2, lines 65-20, a basic clock signal), and generates a second transmission start signal (columns 1-2, lines 65-20, a delay-resultant clock signal) after the determined current time period (columns 1-2, lines 65-20, a timing depending on the delay-resultant clock signal) from reception of first transmission start signal (columns 1-2, lines 65-20, a basic clock signal), at least one previous time period being measured in transmission signal processing section, wherein a transmission signal is transmitted from communication control apparatus to communicating mobile station (abstract, the base station transmits the resultant modulated carrier toward the terminal stations via a downlink) in response to transmission start signal (column 6 lines 21-39, the clock signal generator 14 outputs

the clock signal (i.e. transmission start signal) to the spreading circuit 120. The spreading circuit 120 includes a generator which produces a pseudo-noise code (a spread code) in response to the clock signal. The produced pseudo-noise code agrees with a pseudo-noise code assigned to the terminal station 20. The spreading circuit 120 includes a multiplier or a mixer which converts the input data into a base-band spread-spectrum information signal in response to the pseudo-noise code. The spreading circuit 120 outputs the base-band spread-spectrum information signal to the RF modulator 121. The RF modulator 121 modulates an RF carrier in accordance with the base-band spread-spectrum information signal, thereby converting the base-band spread-spectrum information signal into an RF spread-spectrum information signal. The RF spread-spectrum information signal is fed to the antenna 16 via the RF power amplifier and the duplexer 15. The RF spread-spectrum information signal is radiated (i.e. a transmission signal is transmitted from communication control apparatus) from the antenna 16).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Applicant's admitted prior art's system/method with the steps of using two signals and two timing periods to trigger a transmission from the base station as suggested by Takeishi. The motivation is that such method enables the base station to include an arrangement for acquiring and maintaining the synchronizations with information signals transmitted from the terminal stations; thus making the communication reliable.

In regards to claim 15, Applicant's Admitted Prior Art teaches a CDMA base station system (Figure 1, base station 120), comprising: a control section (Figure 1, a control section 110) which generates a first transmission start signal to instruct start of software hand-over for a mobile station which is communicating (page 2 lines 22-26, The control section 110 refers to an internal counter 109 in a software polling process, and calculates the transmission start timing based on a value read out from the internal counter 109 and outputs transmission start signal to spreading section 102b), antennas which are provided to communicate with communicating mobile station (Figure 1, elements 105a and 105b); spreading sections (Figure 1, elements 102a and 102b); dispreading sections (Figure 1, elements 107a and 107b).

Applicant's Admitted Prior art does not explicitly teach a transmission signal processing section which determines a current time period from at least one previous time period in response to first transmission start signal, and generates a second transmission start signal after the determined current time period from reception of first transmission start signal, at least one previous time period being measured in transmission signal processing section; generating a spread signal obtained by carrying out a spreading process to a transmission base band signal in response to transmission start signal, spread signal being transmitted to communicating mobile state through one of antennas corresponding to selected spreading section; and carrying out synchronization detection of a reception signal from communicating mobile station and generating a synchronization establishment signal.

Takeishi in the same field of endeavor teaches a transmission signal processing section (Figure 1, in base station 10 the data controller 11, the transmitter 12, the receiver 13, the clock signal generator 14 and the duplexer 15 in combination is the transmission signal processing section) which determines a current time period (columns 1-2, lines 65-20, a timing depending on the delay-resultant clock signal) from at least one previous time period (columns 1-2, lines 65-20, time when a basic clock signal is first generated) in response to first transmission start signal (columns 1-2, lines 65-20, a basic clock signal), and generates a second transmission start signal (columns 1-2, lines 65-20, a delay-resultant clock signal) after the determined current time period (columns 1-2, lines 65-20, a timing depending on the delay-resultant clock signal) from reception of first transmission start signal (columns 1-2, lines 65-20, a basic clock signal), at least one previous time period being measured in transmission signal processing section, wherein a transmission signal is transmitted from communication control apparatus to communicating mobile station (abstract, the base station transmits the resultant modulated carrier toward the terminal stations via a downlink) in response to transmission start signal (column 6 lines 21-39, the clock signal generator 14 outputs the clock signal (i.e. transmission start signal) to the spreading circuit 120. The spreading circuit 120 includes a generator which produces a pseudo-noise code (a spread code) in response to the clock signal. The produced pseudo-noise code agrees with a pseudo-noise code assigned to the terminal station 20. The spreading circuit 120 includes a multiplier or a mixer which converts the input data into a base-band spread-spectrum information signal in response to the pseudo-noise code (i.e. generating a

spread signal obtained by carrying out a spreading process to a transmission base band signal in response to transmission start signal). The spreading circuit 120 outputs the base-band spread-spectrum information signal to the RF modulator 121. The RF modulator 121 modulates an RF carrier in accordance with the base-band spread-spectrum information signal, thereby converting the base-band spread-spectrum information signal into an RF spread-spectrum information signal. The RF spread-spectrum information signal is fed to the antenna 16 via the RF power amplifier and the duplexer 15 (i.e. spread signal being transmitted to communicating mobile state through one of antennas corresponding to selected spreading section). The RF spread-spectrum information signal is radiated (i.e. a transmission signal is transmitted from communication control apparatus) from the antenna 16); and carrying out synchronization detection of a reception signal from communicating mobile station and generates a synchronization establishment signal (columns 9 lines 42-55, the sync acquisition circuit 232 receives the output signal of the VCO 24, and uses the output signal of the VCO 24 as a clock signal. The sync acquisition circuit 232 has a section for generating a reference code in response to the clock signal. the sync acquisition circuit 232 has a section for despreading the base-band spread-spectrum information signal into a non-spread information signal in response to the pseudo-noise code (the reference code). The sync acquisition circuit 232 outputs the non-spread information signal to the decoding circuit 233. The decoding circuit 233 subjects the non-spread information signal to a given process corresponding to digital demodulation such as PSK demodulation or QPSK demodulation, and thereby recovers original data from the

non-spread information signal. The decoding circuit 233 uses the output signal of the VCO 24 as a demodulation timing control signal (i.e. synchronization establishment signal). The decoding circuit 233 feeds the recovered original data to the data controller 21, and then the recovered original data is outputted from the data controller 21).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Applicant's admitted prior art's system/method with the steps of using two signals and two timing periods to trigger a transmission from the base station and generating a spread signal obtained by carrying out a spreading process to a transmission base band signal in response to transmission start signal, spread signal being transmitted to communicating mobile state through one of antennas corresponding to selected spreading section; and carrying out synchronization detection of a reception signal from communicating mobile station and generating a synchronization establishment signal as suggested by Takeishi. The motivation is that such method enables the base station to include an arrangement for acquiring and maintaining the synchronizations with information signals transmitted from the terminal stations; thus making the communication reliable.

In regards to claim 21, Applicant's Admitted Prior Art teaches a communication control method in a CDMA base station system (Figure 1, base station 120), comprising: generating a first transmission start signal (page 2 lines 22-26, The control section 110 refers to an internal counter 109 in a software polling process, and calculates the transmission start timing based on a value read out from the internal counter 109 and outputs transmission start signal to spreading section 102b) to instruct

software hand-over between a first sector and a second sector different from the first sector in which a mobile station which is communicating (page 1 lines 18-27, a mobile station establishes radio links with the base station through the antennas of a plurality of sectors at a same time, and carries out software hand-over. The mobile tries to establish the radio links with the base station through an antenna of a specific sector and another antenna of another sector different from the specific sector);

Applicant's Admitted Prior Art does not explicitly teach generating a second transmission start signal with a current time period in response to first transmission start signal; and transmitting to communicating mobile station, a spread signal which is obtained by carrying out a spreading process to a transmission base band signal in response to second transmission start signal.

Takeishi in the same field of endeavor teaches a transmission signal processing section (Figure 1, in base station 10 the data controller 11, the transmitter 12, the receiver 13, the clock signal generator 14 and the duplexer 15 in combination is the transmission signal processing section) which determines a current time period (columns 1-2, lines 65-20, a timing depending on the delay-resultant clock signal) from at least one previous time period (columns 1-2, lines 65-20, time when a basic clock signal is first generated) in response to first transmission start signal (columns 1-2, lines 65-20, a basic clock signal), and generates a second transmission start signal (columns 1-2, lines 65-20, a delay-resultant clock signal) after the determined current time period (columns 1-2, lines 65-20, a timing depending on the delay-resultant clock signal) from reception of first transmission start signal (columns 1-2, lines 65-20, a basic clock

signal), at least one previous time period being measured in transmission signal processing section, wherein a transmission signal is transmitted from communication control apparatus to communicating mobile station (abstract, the base station transmits the resultant modulated carrier toward the terminal stations via a downlink) in response to transmission start signal (column 6 lines 21-39, the clock signal generator 14 outputs the clock signal (i.e. transmission start signal) to the spreading circuit 120. The spreading circuit 120 includes a generator which produces a pseudo-noise code (a spread code) in response to the clock signal. The produced pseudo-noise code agrees with a pseudo-noise code assigned to the terminal station 20. The spreading circuit 120 includes a multiplier or a mixer which converts the input data into a base-band spread-spectrum information signal in response to the pseudo-noise code (i.e. generating a spread signal obtained by carrying out a spreading process to a transmission base band signal in response to transmission start signal). The spreading circuit 120 outputs the base-band spread-spectrum information signal to the RF modulator 121. The RF modulator 121 modulates an RF carrier in accordance with the base-band spread-spectrum information signal, thereby converting the base-band spread-spectrum information signal into an RF spread-spectrum information signal. The RF spread-spectrum information signal is fed to the antenna 16 via the RF power amplifier and the duplexer 15 (i.e. spread signal being transmitted to communicating mobile state through one of antennas corresponding to selected spreading section). The RF spread-spectrum information signal is radiated (i.e. a transmission signal is transmitted from communication control apparatus) from the antenna 16);

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Applicant's admitted prior art's system/method with the steps of using two signals and two timing periods to trigger a transmission from the base station and generating a spread signal obtained by carrying out a spreading process to a transmission base band signal in response to transmission start signal, spread signal being transmitted to communicating mobile state through one of antennas corresponding to selected spreading section as suggested by Takeishi. The motivation is that such method enables the base station to include an arrangement for acquiring and maintaining the synchronizations with information signals transmitted from the terminal stations; thus making the communication reliable.

In regards to claims 2 and 16, Applicant's Admitted Prior Art does not explicitly teach determining current time period from at least one previous time period stored in a memory area.

Takeishi in the same field of endeavor teaches determining current time period from at least one previous time period stored in a memory area (column 4 lines 38-50, each of the signal processing circuits includes a memory storing information of the stored delay time (i.e. current time period which is derived from clock timing) and a clock timing (i.e. previous time period).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Applicant's admitted prior art's system/method with the steps of determining current time period from at least one previous time period stored in

a memory area as suggested by Takeishi. The motivation is that saving data in memory enables a system to obtain the saved data later reliably for later calculation.

In regards to claim 7, Applicant's Admitted Prior Art teaches apparatus is provided for a plurality of sectors, software hand-over is carried out between first and second sectors of plurality of sectors, and communicating mobile phone is communicating in first sector (page 1 lines 18-27, a mobile station establishes radio links with the base station through the antennas of a plurality of sectors at a same time, and carries out software hand-over. The mobile tries to establish the radio links with the base station through an antenna of a specific sector and another antenna of another sector different from the specific sector).

In regards to claim 9, Applicant's Admitted Prior Art does not explicitly teach determining current time period from previous time period immediately before.

Takeishi in the same field of endeavor teaches determining current time period from previous time period immediately before (columns 1-2, lines 65-20).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Applicant's admitted prior art's system/method with the steps of determining current time period from previous time period immediately before as suggested by Takeishi. The motivation is that by determining current time period from previous time period immediately before one can calculate a very accurate synchronization parameter to make the communication system reliable.

3. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior art and Takeishi as applied to claim 1 above and further in view of Otsuka et al. (US PAT 7174167, hereinafter Otsuka).

In regards to claim 4, Applicant's Admitted Prior Art and Takeishi teach a memory for storing data as described above.

Applicant's Admitted Prior Art and Takeishi do not explicitly teach memory area being provided for every mobile station.

Otsuka in the same field of endeavor teaches memory area being provided for every mobile station (column 15 lines 19-21).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Applicant's admitted prior art and Takeishi's system/method with the steps of memory area being provided for every mobile station. The motivation is that to reliably and efficiently handle call, work-area in memory has to be allocated for all mobile stations connected to the base station to store call related parameters of individual mobiles.

4. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior art and Takeishi as applied to claim 1 above and further in view of Pfister et al. (US PAT PUB 2003/0046365, hereinafter Pfister).

In regards to claims 5 and 6 Applicant's Admitted Prior Art and Takeishi teach a memory for storing data as described above.

Applicant's Admitted Prior Art and Takeishi do not explicitly teach memory area being cleared if memory area is not accessed for a predetermined time as in claim 5 and memory area being allocated to another after memory area is cleared as in claim 6.

Pfister in the same field of endeavor teaches memory area being cleared if memory area is not accessed for a predetermined time and memory area being allocated to another after memory area is cleared (section 0007).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Applicant's admitted prior art and Takeishi's system/method with the steps of memory area being cleared if memory area is not accessed for a predetermined time and memory area being allocated to another after memory area is cleared as suggested by Pfister. The motivation is that by clearing longest unused data from the memory, memory resources can be reallocated for re-use; thus enable efficient use of memory resources.

Allowable Subject Matter

5. Claims 3, 8, 10-14, 17-20 and 22-25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Salman Ahmed whose telephone number is (571) 272-8307. The examiner can normally be reached on 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edan Orgad can be reached on (571) 272-7884. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Salman Ahmed
Patent Examiner
8/29/2007

SA
11/16/2007

EDAN . ORGAD
SUPERVISORY PATENT EXAMINER